REMARKS

In the Specification

Applicants have amended the specification to include a Sequence Listing. A paper copy of the Sequence Listing accompanies this response. A copy of the Sequence Listing in computer readable format (CRF) also accompanies this response. The sequence listing information recorded in computer readable form is identical to the written (on paper or compact disc) Sequence Listing and in the Description as filed May 2, 2005 and contains no new matter. Applicants believe that the application now complies with 37 CFR § 1.821(d)

Applicants have amended the specification to recite the Sequence Identification Numbers (SEQ ID NOs) as disclosed in the Sequence Listing.

No new matter has been added by these amendments.

In the Claims

Claim 1 is amended to recite the language of the preamble as an active positive step.

Claim 1 is amended to recite that the degrading step results in degraded oligonucleotide probe, and that the information relating to the electrochemically active marker correlates with the presence of the nucleic acid and correlates with the size and characteristics of the degraded or non-degraded oligonucleotide probe.

Claims 3, 4, and 11 have been amended to correct antecedent basis of the term "oligonucleotide probe".

Claims 26-42, 46-60, 63-90, and 106-108 have been canceled without prejudice.

New claims 109-133 have been added.

Support for the amendment to claim 1 is to be found in the specification at page 3, lines 1 through 12, lines 30 through 34 and continues on page 4, lines 1 through 5, lines 14 and 15; at page 5, lines 12 through 19; at page 6, lines 16 and 17; at page 14, lines 11 through 13; at page 17, lines 22 through 23 and lines 28 through 30; at pages 20 through 22; at page 32, lines 19 through 34; and at Table 4.

Support for new claims 109-111 is to be found in the specification at page 18, lines 23-29; at page 35, lines 31-33 and continued on pages 36, 37, 38, and page 39, lines 1-7, Figures 15a and 15b, and in the Abstract.

Support for new claims 112-132 is to be found in claims 1-25, 43-45, 61-62, and 91-105 as originally filed.

No new matter has been added by these amendments.

Applicants submit that new claims 109-133 are drawn to a method of probing nucleic acid and therefore within the scope of the claims of elected Group 1. Applicants request entry and consideration of new claims 109-133.

Applicants respectfully request entry of the present amendment.

Election/Restriction

1) Applicants respectfully remind the Examiner that claims 43, 44, and 45 are dependent upon claim 1. Applicants therefore again request reconsideration of the requirement for restriction of claims 43, 44, and 45 and, should claim 1 be found allowable, the Examiner rejoin claims 43, 44, and 45.

Claim Rejections under 35 USC § 112, second paragraph

2) The Examiner has rejected claims 1-9, 11-25, and 91-105 under 35 USC § 112, second paragraph, as being indefinite to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner stated that claims 1-9, 11-25, and 91-105 are indefinite because they lack a positive active step relating back to the preamble.

3) Applicants have amended claim 1 to include a recitation that the method claimed results in probing for the nucleic acid.

Applicants respectfully request that the Examiner withdraw the rejection of claims 1-9, 11-25, and 91-105 under 35 USC § 112, second paragraph.

Claim Rejections under 35 USC § 102(b)

4) The Examiner has rejected claims 1-3, 11-18, 20-25, 91, 92, and 99-101 under 35 USC § 102(b) as being anticipated by Clinical Micro Sensors, Inc. (WO01/06016, published January 25, 2001).

The Examiner stated that with regards to claim 1, Clinical Micro Sensors, Inc. (hereafter CMS) teaches a method of detecting a nucleic acid by use of two probes labeled with electron transfer moieties linked by a scissile linker which comprises element (1) of CMS' Figure 30. The Examiner stated that CMS further teaches that the two probe linker complex (1) is provided condition in which it can hybridize to the target sequence forming complex (6), and the linker is then cleaved. The Examiner further stated that C teaches the detection of both probes by electron transfer, thus detecting the presence of the target nucleotide.

> Anticipation under 35 U.S.C. 102(b) requires the presence in a single prior art disclosure of each and every element of a claimed invention, Lewmar Marine, Inc. v. Barient, Inc., 827 F.2d 744, 747, 3 USPQ2d 1766, 1767 (Fed. Cir. 1987), cert. denied, 484 U.S. 1007 (1988).

5) Applicants respectfully submit that CMS does not disclose a method comprising determining information relating to the electrochemically active marker wherein the information relating to the electrochemically active marker correlates with the size and characteristics of the degraded or non-degraded oligonucleotide probe. CMS discloses that the "uncleaved primary probes are removed" and therefore cannot contribute to the method of detecting the probe sequences (CMS at page 12, lines 13-14).

Applicants have amended claim 1 to recite: "A method of probing for a nucleic acid comprising: contacting a nucleic acid solution with an oligonucleotide probe labeled with an electrochemically active marker; providing conditions at which the probe is able to at least partially hybridize with any complementary target nucleic acid sequence which may be present in the nucleic acid solution; selectively degrading either hybridized, partially hybridized or unhybridized oligonucleotide probe, the degrading resulting in degraded oligonucleotide probe; and electrochemically determining information relating to the electrochemically active marker, wherein the information relating to the electrochemically active marker correlates with the presence of the nucleic acid and wherein the information relating to the electrochemically active marker correlates with the size and characteristics of the degraded or non-degraded oligonucleotide probe, the method resulting in probing for the nucleic acid".

Applicants submit that CMS teaches detection of a digested probe whereas the instant invention discloses and claims a method for detecting non-degraded probe and distinguishing that non-degraded probe from degraded probe using information relating to the electrochemically active marker.

Applicants submit that claim 1 as amended is not anticipated by CMS. Applicants further submit that dependent claims 2-3, 11-18, 20-25, 91, 92, and 99-101 are also therefore not anticipated by CMS.

Applicants therefore respectfully request that the Examiner withdraw the rejections of claims 1-3, 11-18, 20-25, 91, 92, and 99-101 under 35 USC § 102(b).

Claim Rejections under 35 USC § 103(a)

6) The Examiner has rejected claims 4-9, and 94-98 under 35 USC § 103(a) as being unpatentable over Kumar et al. (US Patent 5,770,370 issued June 23, 1998) in view of Clinical Micro Sensors, Inc. (CMS; WO01/06016, published January 25, 2001).

> "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the

obviousness or nonobviousness of the subject matter is determined." *Graham v. John Deere Co.*, 148 USPQ 459, 467 (S.Ct. 1966).

7) Applicants respectfully submit that neither Kumar nor CMS teach a method comprising determining information relating to the electrochemically active marker wherein the information relating to the electrochemically active marker correlates with the size and characteristics of the degraded or non-degraded oligonucleotide probe.

Applicants have amended claim 1 to recite: "A method of probing for a nucleic acid comprising: contacting a nucleic acid solution with an oligonucleotide probe labeled with an electrochemically active marker; providing conditions at which the probe is able to at least partially hybridize with any complementary target nucleic acid sequence which may be present in the nucleic acid solution; selectively degrading either hybridized, partially hybridized or unhybridized oligonucleotide probe, the degrading resulting in degraded oligonucleotide probe; and electrochemically determining information relating to the electrochemically active marker, wherein the information relating to the electrochemically active marker correlates with the presence of the nucleic acid and wherein the information relating to the electrochemically active marker correlates with the size and characteristics of the degraded or non-degraded oligonucleotide probe, the method resulting in probing for the nucleic acid".

Applicants submit that the prior art and the claims at issue are different and therefore that claim 4, being depend upon claim 1 as amended, is not unpatentable over Kumar et al. in view of Clinical Micro Sensors, Inc. Applicants further submit that dependent claims 5-9, and 94-98 are therefore also not unpatentable over Kumar et al. in view of Clinical Micro Sensors, Inc.

Applicants therefore respectfully request that the Examiner withdraw the rejections of claims 4-9, and 94-98 under 35 USC § 103(a).

8) The Examiner has rejected claim 93 under 35 USC § 103(a) as being unpatentable over Clinical Micro Sensors, Inc. (CMS; WO01/06016, published January 25, 2001) in view of Nikiforov et al. (US Patent 5,518,900, issued May 21, 1996).

> "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." *Graham v. John Deere Co.*, 148 USPQ 459, 467 (S.Ct. 1966).

9) Applicants respectfully submit that CMS does not teach a method comprising determining information relating to the electrochemically active marker wherein the information relating to the electrochemically active marker correlates with the size and characteristics of the degraded or non-degraded oligonucleotide probe.

Applicants have amended claim 1 to recite: "A method of probing for a nucleic acid comprising: contacting a nucleic acid solution with an oligonucleotide probe labeled with an electrochemically active marker; providing conditions at which the probe is able to at least partially hybridize with any complementary target nucleic acid sequence which may be present in the nucleic acid solution; selectively degrading either hybridized, partially hybridized or unhybridized oligonucleotide probe, the degrading resulting in degraded oligonucleotide probe; and electrochemically determining information relating to the electrochemically active marker, wherein the information relating to the electrochemically active marker correlates with the presence of the nucleic acid and wherein the information relating to the electrochemically active marker correlates with the size and characteristics of the degraded or non-degraded oligonucleotide probe, the method resulting in probing for the nucleic acid".

Applicants submit that the prior art and the claims at issue are different and therefore that claim 93, being depend upon claim 1 as amended, is not unpatentable over Clinical Micro Sensors, Inc. in view of Nikiforov et al.

Applicants therefore respectfully request that the Examiner withdraw the rejections of claim 93 under 35 USC § 103(a).

10) The Examiner has rejected claims 102-105 under 35 USC § 103(a) as being unpatentable over Clinical Micro Sensors, Inc. (CMS; WO01/06016, published January 25, 2001) in view of Heller et al. (US Patent 5,605,622, issued February 25, 1997).

> "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." *Graham v. John Deere Co.*, 148 USPQ 459, 467 (S.Ct. 1966).

11) Applicants respectfully submit that CMS does not teach a method comprising determining information relating to the electrochemically active marker wherein the information relating to the electrochemically active marker correlates with the size and characteristics of the degraded or non-degraded oligonucleotide probe.

Applicants have amended claim 1 to recite: "A method of probing for a nucleic acid comprising: contacting a nucleic acid solution with an oligonucleotide probe labeled with an electrochemically active marker; providing conditions at which the probe is able to at least partially hybridize with any complementary target nucleic acid sequence which may be present in the nucleic acid solution; selectively degrading either hybridized, partially hybridized or unhybridized oligonucleotide probe, the degrading resulting in degraded oligonucleotide probe; and electrochemically determining information relating to the electrochemically active marker, wherein the information relating to the electrochemically active marker correlates with the presence of the nucleic acid and wherein the information relating to the electrochemically active marker correlates with the size and characteristics of the degraded or non-degraded oligonucleotide probe, the method resulting in probing for the nucleic acid".

Applicants submit that the prior art and the claims at issue are different and therefore that claims 102-105, being depend upon claim 1 as amended, is not unpatentable over Clinical Micro Sensors, Inc. in view of Heller et al.

Applicants therefore respectfully request that the Examiner withdraw the rejections of claims 102-105 under 35 USC § 103(a).

12) The Examiner has rejected claim 19 under 35 USC § 103(a) as being unpatentable over Clinical Micro Sensors, Inc. (CMS; WO01/06016, published January 25, 2001) in view of Hall et al. (US Patent 5,994,069, issued November 30, 1999).

> "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." *Graham v. John Deere Co.*, 148 USPQ 459, 467 (S.Ct. 1966).

13) Applicants respectfully submit that CMS does not teach a method comprising determining information relating to the electrochemically active marker wherein the information relating to the electrochemically active marker correlates with the size and characteristics of the degraded or non-degraded oligonucleotide probe.

Applicants have amended claim 1 to recite: "A method of probing for a nucleic acid comprising: contacting a nucleic acid solution with an oligonucleotide probe labeled with an electrochemically active marker; providing conditions at which the probe is able to at least partially hybridize with any complementary target nucleic acid sequence which may be present in the nucleic acid solution; selectively degrading either hybridized, partially hybridized or unhybridized oligonucleotide probe, the degrading resulting in degraded oligonucleotide probe; and electrochemically determining information relating to the electrochemically active marker, wherein the information relating to the electrochemically active marker correlates with the presence of the nucleic acid and wherein the information relating to the electrochemically active marker correlates with the size and characteristics of the degraded or non-degraded oligonucleotide probe, the method resulting in probing for the nucleic acid".

Applicants submit that the prior art and the claims at issue are different and therefore that claim 19, being depend upon claim 1 as amended, is not unpatentable over Clinical Micro Sensors, Inc. in view of Hall et al.

Applicants therefore respectfully request that the Examiner withdraw the rejections of claim 19 under 35 USC § 103(a).

CONCLUSION

With these amendments and arguments, Applicants believe that the application is in condition for allowance. If the US Patent Office believes that communication would further the prosecution of this application, then the appropriate US Patent Office personnel are invited to contact the Applicants' below-signed representative at their earliest convenience.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Bell & Associates Deposit Account No. 50-3194.

Dated and signed:

13th September 2007

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